

2. (Original) A heat sealing and cutting mechanism according to claim 1 wherein said heat sealing bands are vulcanized onto an electrically insulating backing that is affixed to said carrier.

3. (Original) A heat sealing and cutting mechanism according to claim 2 wherein each heat sealing band has indentations formed in at least one side thereof at spaced locations to define a set of fins.

4. (Original) A heat sealing and cutting mechanism according to claim 3 wherein each heat sealing band has indentations formed in opposite sides thereof to define two sets of fins, the indentations formed in each side being generally aligned so as to generally align the fins of each set.

5. (Currently Amended) A heat sealing and cutting mechanism according to claim 2 wherein said cutting element is vulcanized ~~into~~ onto said backing.

6. (Original) A heat sealing and cutting mechanism according to claim 5 wherein an undersurface of said cutting element is serrated to define a set of spaced teeth, said teeth being embedded in said backing so that said cutting element presents a cutting edge in front of said backing.

7. (Original) A heat sealing and cutting mechanism according to claim 6 wherein said heat sealing bands and said cutting element are curved.

8. (Original) A heat sealing and cutting mechanism according to claim 5 wherein the ends of said heat sealing bands are joined at tabs, said tabs extending beyond the ends of said backing and being connectable to a power supply.

9. (Currently Amended) A heat sealing and cutting mechanism according to claim 8 wherein tabs are formed at the ends of said cutting element, said cutting element tabs extending through said backing and said carrier and being connectable to a power supply.

10. (Original) A heat sealing and cutting mechanism according to claim 9 wherein said carrier is formed of anodized aluminum and said backing is formed of silicon rubber.

11. (Original) A heat sealing and cutting mechanism according to claim 1 wherein said heat sealing bands are convex.

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12. (Original) A heat sealing and cutting station for a container forming apparatus to form heat seals and cuts across a fluid filled tube of flexible packaging material at longitudinally spaced locations, said heat sealing and cutting station comprising:

a heat sealing and cutting mechanism including:

a carrier to contact said tube;

a pair of closely spaced heat sealing bands on said carrier, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said carrier is in contact with said tube and said heat sealing bands are energized, said heat sealing bands being configured to define temperature gradients therealong when energized; and

a cutting wire on said carrier and disposed between said heat sealing bands, said cutting wire being energizable to cut said tube when said carrier is in contact with said tube;

a support on which said carrier is mounted on one side of said tube, said support being movable between a retracted position where said carrier is spaced from said tube and an extended position where said carrier is in contact with said tube;

a backing plate on an opposite side of said tube, said backing plate being aligned with said carrier and being movable between a retracted position spaced from said tube and an extended position in contact with said tube; and

a drive operable on said support and said backing plate to move said carrier and backing plate between the retracted positions where said tube is free and said extended positions where said tube is trapped between said carrier and backing plate.

13. (Currently Amended) A heat sealing and cutting station according to claim 12 wherein said heat sealing bands are vulcanized onto an electrically insulating backing that is affixed to said carrier and wherein said cutting wire is vulcanized in onto said backing, said cutting wire being generally centrally disposed between said heat sealing bands.

14. (Original) A heat sealing and cutting station according to claim 13 wherein each heat sealing band has indentations formed in at least one side thereof at spaced locations to define a set of fins.

15. (Original) A heat sealing and cutting station according to claim 14 wherein each heat sealing band has indentations formed in opposite sides thereof to define two sets of fins, the indentations formed in each side being generally aligned so as to generally align the fins of each set.

16. (Original) A heat sealing and cutting station according to claim 12 wherein said backing plate has an electrically insulating backing thereon, said backing being convex in shape and having a groove formed therein, said groove being aligned with said cutting wire.

17. (Original) A heat sealing and cutting station according to claim 16 wherein an undersurface of said cutting wire is serrated to define a set of spaced teeth, said teeth being embedded in said backing so that said cutting wire presents a cutting edge in front of said backing.

18. (Original) A heat sealing and cutting station according to claim 17 wherein said carrier is formed of anodized aluminum and wherein said backings are formed of silicon rubber.

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19. (Currently Amended) A heat sealing and cutting station for a container forming apparatus to form heat seals and cuts across a tube of flexible packaging material at longitudinally spaced locations, said heat sealing and cutting station comprising:

at least one set of jaws moveable between an open position where said tube is free and a closed position where said tube is trapped between said jaws;

a heat sealing and cutting mechanism carried by one of said jaws, said heat sealing and cutting mechanism including:

a pair of curved, closely spaced heat sealing bands mounted ~~onto~~ on an electrically insulating backing, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said ~~one jaw is in contact with said tube~~ is trapped between said jaws and said heat sealing bands are energized, said heat sealing bands being configured to define temperature gradients therealong when energized; and

a cutting element on said one jaw and disposed between said heat sealing bands, said cutting element being energizable to cut said tube when said ~~carrier is in contact with said tube~~ is trapped between said jaws; and

at least one power supply to energize said heat sealing bands and said cutting wire.

20. (Original) A heat sealing and cutting station according to claim 19 wherein each heat sealing band has indentations formed in at least one side thereof at spaced locations to define a set of fins.

21. (Original) A heat sealing and cutting station according to claim 20 wherein each heat sealing band has indentations formed in opposite sides thereof to define two sets of fins, the indentations formed in each side being generally aligned so as to generally align the fins of each set.

22. (Original) A heat sealing and cutting mechanism according to claim 21 wherein said heat sealing bands are convex.

23. (Original) A heat sealing and cutting mechanism according to claim 22 wherein said other jaw carries an insulating convex backing.

24. (Currently Amended) A heat sealing and cutting mechanism according to claim 23 wherein said convex backing has a groove formed therein that is aligned with said cutting element.

Claims 25 to 33: (Canceled)

34. (New) A heat sealing and cutting mechanism to form a heat seal and a cut across a tube of flexible packaging material, said heat sealing and cutting mechanism comprising:

a carrier to contact said tube;
a pair of closely spaced, generally convex heat sealing bands on said carrier, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said carrier is in contact with said tube and said heat sealing bands are energized; and
a cutting element on said carrier and disposed between said heat sealing bands, said cutting element being energizable to cut said tube when said carrier is in contact with said tube.

35. (New) A heat sealing and cutting mechanism according to claim 34 wherein said heat sealing bands are vulcanized onto an electrically insulating backing that is affixed to said carrier.

36. (New) A heat sealing and cutting mechanism according to claim 35 wherein said cutting element is vulcanized onto said backing.

37. (New) A heat sealing and cutting mechanism according to claim 34 wherein said heat sealing bands and said cutting element are curved.

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38. (New) A heat sealing and cutting mechanism according to claim 34 wherein the ends of said heat sealing bands are joined at tabs, said tabs extending beyond the ends of said backing and being connectable to a first power supply.

39. (New) A heat sealing and cutting mechanism according to claim 38 wherein tabs are formed at the ends of said cutting element, said cutting element tabs extending through said backing and said carrier and being connectable to a second power supply.

40. (New) A heat sealing and cutting mechanism according to claim 34 wherein said carrier is formed of anodized aluminum and said backing is formed of silicon rubber.

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41. (New) A heat sealing and cutting station for a container forming apparatus to form heat seals and cuts across a fluid filled tube of flexible packaging material at longitudinally spaced locations, said heat sealing and cutting station comprising:

- a heat sealing and cutting mechanism including:
 - a carrier to contact said tube;
 - a pair of closely spaced, generally convex heat sealing bands on said carrier, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said carrier is in contact with said tube and said heat sealing bands are energized; and
 - a cutting element on said carrier and disposed between said heat sealing bands, said cutting element being energizable to cut said tube when said carrier is in contact with said tube;
- a support on which said carrier is mounted on one side of said tube, said support being movable between a retracted position where said carrier is spaced from said tube and an extended position where said carrier is in contact with said tube;
- a backing plate on an opposite side of said tube, said backing plate being aligned with said carrier and being movable between a retracted position spaced from said tube and an extended position in contact with said tube; and
- a drive operable on said support and said backing plate to move said carrier and backing plate between the retracted positions where said tube is free and the extended positions where said tube is trapped between said carrier and backing plate.

42. (New) A heat sealing and cutting station according to claim 41 wherein said heat sealing bands are vulcanized onto an electrically insulating backing that is affixed to said carrier and wherein said cutting element is vulcanized onto said backing, said cutting element being generally centrally disposed between said heat sealing bands.

43. (New) A heat sealing and cutting station according to claim 42 wherein said backing plate has an electrically insulating backing thereon, said backing being convex in shape and having a groove formed therein, said groove being aligned with said cutting element.

44. (New) A heat sealing and cutting station according to claim 43 wherein said carrier is formed of anodized aluminum and wherein said backings are formed of silicon rubber.

45. (New) A heat sealing and cutting station for a container forming apparatus to form heat seals and cuts across a tube of flexible packaging material at longitudinally spaced locations, said heat sealing and cutting station comprising:

at least one set of jaws moveable between an open position where said tube is free and a closed position where said tube is trapped between said jaws;

a heat sealing and cutting mechanism carried by one of said jaws, said heat sealing and cutting mechanism including:

a pair of curved, closely spaced, generally convex heat sealing bands mounted on an electrically insulating backing, said heat sealing bands being energizable to form closely spaced heat seals across said tube when said tube is trapped between said jaws and said heat sealing bands are energized; and

a cutting element on said one jaw and disposed between said heat sealing bands, said cutting element being energizable to cut said tube when said tube is trapped between said jaws; and

at least one power supply to energize said heat sealing bands and said cutting element.

46. (New) A heat sealing and cutting mechanism according to claim 45 wherein another of said jaws carries an insulating convex backing.

47. (New) A heat sealing and cutting mechanism according to claim 46 wherein said backing has a groove formed therein that is aligned with said cutting element.

48. (New) A heat sealing and cutting mechanism wherein said heat sealing bands and cutting element are curved.

49. (New) A heat sealing mechanism to form heat seals across a tube of flexible packaging material comprising:

a pair of members movable relation to one another between an open condition where said tube is free and a closed condition where said tube is trapped between said members; and

at least one heat sealing band on one of said members, said heat sealing band presenting an outer generally convex surface facing said tube, said at least one heat sealing band forming a heat seal across said tube when said at least one heat sealing band is energised and said members are in said closed condition.

50. (New) A heat sealing mechanism according to claim 49 wherein said at least one heat sealing band is mounted on an insulation backing carried by said one member.

51. (New) A heat sealing mechanism according to claim 50 wherein said at least one heat sealing band is vulcanized on said insulating backing.

52. (New) A heat sealing mechanism according to claim 50 including a pair of closely spaced heat sealing bands on said one member.

53. (New) A heat sealing mechanism according to claim 52 wherein said heat sealing bands are shaped to form non-linear heat seals across said tube.

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54. (New) A heat sealing and cutting mechanism to form heat seals and cuts across a tube of flexible packaging material, comprising:

a pair of members movable relative to one another between an open condition where said tube is free and a closed condition where said tube is trapped between said members;

at least one heat sealing band on one of said members, said heat sealing band presenting an outer generally convex surface facing said tube, said at least one heat sealing band forming a heat seal across said tube when said at least one heat sealing band is energized and said members are in said closed condition;

a cutting element on one of said members, said cutting element forming a cut across said tube when said cutting element is energized and said members are in said closed condition.

55. (New) A heat sealing mechanism according to claim 54 wherein said at least one heat sealing band is mounted on an insulation backing carried by said one member.

56. (New) A heat sealing mechanism according to claim 55 wherein said at least one heat sealing band is vulcanized on said insulating backing.

57. (New) A heat sealing mechanism according to claim 56 including a pair of closely spaced heat sealing bands on said one member.

58. (New) A heat sealing and cutting mechanism according to claim 54 wherein said at least one heat sealing band and said cutting element are on the same one member.

59. (New) A heat sealing and cutting mechanism according to claim 58 wherein said cutting element extends forwardly from said one member and when another of said members has a groove then corresponding in shape to the said cutting element, said groove accommodating said cutting element when said members are in said closed condition.

60. (New) A heat sealing and cutting mechanism according to claim 59 wherein said another member includes an insulating backing to content said tube, said insulator backing having said groove formed therein.

61. (New) A heat sealing mechanism according to claim 54 wherein said at least one heat sealing band is mounted on an insulation backing carried by said one member.

62. (New) A heat sealing mechanism according to claim 55 wherein said at least one heat sealing band is vulcanized on said insulating backing.

63. (New) A heat sealing mechanism according to claim 56 including a pair of closely spaced heat sealing bands on said one member.

64. (New) A heat sealing and cutting mechanism according to claim 52 wherein said cutting element is disposed between said pair of closely spaced heat sealing bands.

65. (New) A heat sealing and cutting mechanism according to claim 64 wherein said cutting element is vulcanized on said insulating backing.

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